BARON'S MicroComputing REPORTS

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DOWNLOADING

DOWNLOADING... is this how you will buy software?

"Downloading," a term which sounds like a blighted romance set to a Country-Western tune, may hold the key to how you will buy software — and how much you will pay for it.

Downloading, or teledistribution, will enable you to order software through your personal computer — and have it delivered instantly to your home or office via telephone, radio or television. It will cost far less than today because middlemen between developers and end users will be eliminated. Discounts of 30% to 40% from retail store prices are already offered by England's Micronet 800 service.

As of now, in the USA, you can already obtain free or low-cost downloaded soft-

ware nationwide. There are three major providers who will send you games or applications programs via telephone anywhere in the country or overseas.

• Telephone Software Connection, Inc. receives from 3,000 to 5,000 inquiries per month concerning its programs written in Applesoft Basic. Buyers need only have an Apple II computer, a Hayes Micromodem, and a major credit card. Programs run from $20 to $75, which, TSC president Ed Magnin says, is far less than in the stores. None take more than 10 minutes to transmit. Magnin wants to expand his four-year-old library to include IBM and CP/M software. *POB 6548, Torrance, CA. 90504. Modem, (213) 516-9432; office, (213) 516-9430.*

SOFTWARE

Watch Out For... the Integrators

There's a wholly new category of business software ready to hit the market late this year. Its entry could be as significant for personal computers as when VisiCalc, the first system to integrate several business functions, was introduced in 1979.

We're talking about the "integrators" software systems that let you run several applications programs simultaneously and eliminate the endless running of programs one-at-a-time. It does away, effectively, with the continuous flipping of diskettes that has been a chief limiting factor on true software integration.

What's in it for you? With integrators

you can have the multiwindowing capabilities of the $10,000 Apple Lisa or the $14,000 plus Xerox Star in a system based on an under-$1500 computer (the integrators will first run on the IBM PC)

Multiwindowing allows you to give each of several applications programs resident in memory its own window on the monitor screen. You can write a report in one window, using a word processing program and freely switch for quick reference to a spreadsheet running in another window. You can also move data between windows; from the spreadsheet to the report or to a database program in another window. All aspects of your business can be integrated

DATA BRIEFS...

○ **Protect yourself against computer fraud and error.** This is the theme of *Minicomputers and Control.* This free booklet provides answers to some 30 questions that are most frequently asked. It covers such topics as passwords, segregation of duties, data recording and review, edit routines, data storage and control totals. All of these are relevant to personal computers in multi-user business environments. It's available at any of Price Waterhouse's 329 offices, or by writing to *Gerald M. Ward, Price Waterhouse, 1251 Avenue of the Americas, New York, NY 10020.*

○ **What are the major uses of home computers?** The information below, reflecting Gallup poll data, shows that while most owners use their machines to play games, business and personal finance applications are becoming important. (Users could give more than one answer.)

Video games 51%
Business or office homework 46%
Child's learning tool 46%
Adult's learning tool 42%
Budget or balancing checkbook ..37%
Business-in-home users 27%
Word processing 18%
Mailing lists 16%
*Information retrieval 14%
Appointment calendar 9%
Storing recipes 9%
Calorie counting 4%
**Includes investing, traveling, account balances, and paying bills by phone.*

○ **Want to start a computer camp** be ready by the summer of 1984? CompuCamp, Inc., a nine-camp chain in seven states (presently serving some 2,000 campers aged 8 to 17) will sell you a franchise in most parts of the US. An initial $25,000 fee will get you a license, use of the Compu-Camp name, curriculum, training programs, camp development and operating and management systems. Another $25,000 or so, payable in the first year, will go for advertising and promotion costs. *CompuFranchise. 345 Woodbridge Plaza, 10201 Wayzata Blvd., Minnetonka, MN. 55343 (800) 328-4158.*

○ **Tone Up at the Terminal** is a free 12-page guide which

DOWNLOADING (Cont'd.)

• **CompuServe, Inc.'s** electronic information network includes a two-year-old Software Exchange for sale and purchase of subscriber-written software. The some 100 TRS-80, Apple and IBM programs available range from less than $10 to over $1,000. Close to 30 sales are made weekly. *500 Arlington Blvd., Columbus, OH. 43220. (800) 848-8990.*

• **Texnet,** an information service for TI 99/4A users, generated by Source Telecomputing, offers absolutely free user-written software. Costs include a $100 one-time registration fee and online hourly charges for 300 baud and 1200 baud service ranging from $5.75 to $25.25. A modem, an RS-232 interface and a terminal emulator, costing about $400 together, are also needed. *The Source, 1616 Anderson Rd., McLean, VA. 22102. (800) 336-3366.*

• *BMR:* Teledistributed software now offers the following advantages and a number of minuses:
- Low-cost or free software
- Ease of access and error-free transmission.
- Awareness of user requirements by authors who are fellow users.
- Limited variety. Downloaded software is mostly for home use. Don't look for sophisticated business programs.
- Excessive transmission time requirements. A program from Texas Instruments Software Exchange may take 25 minutes to download. A project to update dealers' software by phone failed because a 48K-byte program took 20 minutes to transmit.
- No documentation accompanies downloaded programs.

Major improvements in software teledistribution will come late this year and in 1984. Three innovative schemes will resolve teledistribution bottlenecks by using faster means than telephone transmission. None of the three has software downloading as its primary purpose.

• **Romox, Inc.** has introduced a retail store terminal into which customers can insert patented reprogrammable Romox game cartridges to replace old games with new ones from the terminal's menu of 500 titles, downloaded from a central source. Romox marketing director John Monday told *BMR* that educational and simple home programs would be market-tested. If results are positive, they will be available to dealers on cartridges formatted for most home computers and game machines. The next generation Romox terminal, to come out early in 1984, will then have a disk slot for Apple, IBM, Osborne and many other formats.

• **INC Telecommunications, Inc.,** plans a joint communications network venture with National Public Radio that will include, in mid-1984, late-night broadcast of games, and application software. Subscribers paying between $50 and $75 a month will find new software in their machines in the morning.

• **NABU Manufacturing Corp.** of Ottawa, Canada, will market, starting this fall, the NABU Network, a software library and subscriber site equipment package for cable TV networks. Local subscribers (paying $8 to $24 monthly for various levels of service) will have 24 hours-a-day use of not-for-copy home and small business software, including word processors, spreadsheets and data base management programs. The subscriber terminal will be an 80K-byte computer with an intelligent modem, costing $800 without peripherals. A lower-cost connection is being considered for early introduction.

BMR Note: Using Romox, INC, or NABU systems, you will soon be able to obtain a wide range of recreational and applications software at relatively low cost, without long waits and high transmission costs caused by low telephone speeds.

Much will depend on software quality. Unless fool-proof royalty control schemes are instituted, publishers will see transmission of their software as unauthorized copying. What you may get will be something like the Perfect line of applications packages now sold with most non-Osborne transportable computers — which is pretty good.

What you still won't get, however, will be hard copy documentation. That probably will hinder the use of advanced packages, unless these programs become much simpler, or, someone finally decides to bundle an interactive tutorial session into the software. ●

COMING NEXT... the downloaded computer

The $250 COMMUNICOM Videotex terminal being developed by the Jerrold Division of General Instruments will have just enough ROM to connect to a cable channel. Otherwise, it will be based on a large RAM memory which will adapt to any operating system and applications program (equivalent to switching at will from CP/M to TRSDOS, and then to MS/DOS, etc.). Effectively, it will be a do-anything device, whose image will be downloaded with its software.

Starting in 1986, the first applications will probably be home services. Computer software may be available by 1987. Project manager Bill Frazza, also foresees multi-player games, in which several persons will play against each other in a computer-generated environment, rather than against the computer itself.

DATA BRIEFS (Cont'd.)

describes 20 exercises that anyone who puts in too much time at a computer can do at his/her workstation. If you want to overcome tensions, stress, flabby muscles and what have you, write for it to *Verbatim Corporation, 323 Soquel Way, Sunnyvale, CA. (408) 245-4400.*

○ **James Bond vs. the Giant Centipede.** Agent 007 (alias Roger Moore) has joined the select band of show business celebrities who enhance personal computer product marketing with their personalities — Bill Cosby for Texas Instruments, Alan Alda for Atari, the Charlie Chaplin look-alike for IBM. And, now, Roger Moore for Spectravideo. Just like in his flicks, Bond, we mean Moore, may have to battle a monstrous opponent from Spectravideo's arch-rival, Atari. This is the Giant Centipede, a six-foot-tall, multi-legged beasty that will roam the alleyways of Manhattan devouring negligeed beauties and just plain civilians in TV commercials promoting Atari's Centipede videogame. ●

Hands On...

Making Silver Reed go both ways. The new 17 cps, multi-pitch Silver Reed EXP 550 rivals the Smith-Corona TP1 as a favorite low-cost ($899, discounted to $699) letter-quality printer. However, more than one user has complained that the machine would not work bi-directionally as specified. So, here is a solution proposed by Wolf Computer Co., in New York City:

1. Run Install (CP/M single, Word-Star double) and change the type of printer from choice "A" to choice "D" (Diablo 1610).
2. Set the dip switches on the Silver Reed so all 5 on the panel are ON.
3. Save the modification on the correct disk. It will provide you with bidirectional printing, super and subscripts and improved variable spacings.

Good Bye WordStar... Good Bye. When Micro Development, Inc., an Oregon-based seminar and software firm found that its phone calls for help to MicroPro were costing too much time and money — and brought no results — it gave up WordStar. However, it found that its old files could not be read because WordStar sets bit 8 active for some characters for hyphenation. Accordingly, Micro Development has written a conversion program in C language that strips off bit 8. It restores all characters to the ASCII format used by most word processing software. To get the conversion program, send a written request for the WS2ASCII program, with a $5 payment for handling to *Micro Development, Inc., P.O. Box 780-B, Lake Oswego, OR. 97034.*

Incidentally, the Micro Development replacement for WordStar consists of the *Edix* and *Wordix* text editing and word processing programs from Emerging Technologies, Boulder, Colorado. The programs cost $195 each, but are widely discounted by mail order houses for as little as $140 apiece, or $279 for both.

Power Hotline. From 50% to 70% of personal computer hardware malfunctions are directly related to something that happens between the power line and your home or office electrical outlet. So says Richard Petrillo, president of RKS Industries of Scotts Valley, Ca., manufacturers of power monitoring and surge protection equipment. The microcomputer equipment most vulnerable to power surge damage, he says, is disk drives, both hard and floppy.

"Disk drive damage may show up as interference with programs being run, and in logic errors in screen or printer readout. A surge or a spike occurring in a space as brief as a few milliseconds, may even cause a head crash," Petrillo told *BMR*.

RKS Industries has established a "Power Hotline" which offers free consultation on power requirements and problems. It can be accessed by dialing *(800) 892-1342; in California, call (408) 438-5760.*

Clean up your screen. One computer maintenance task that most manufacturers manuals do not cover is keeping your monitor screen clean. Because static electricity causes dust to adhere to the screen, removing it can cause problems; using a wet cloth on electrical apparatus is risky, while anti-static liquid sprays could etch the screen. A just-introduced product

INSIDER NOTES...
by Bill R. Norris

Most people are surprised at how easy programming can be. This might not be the case if the BASIC language was not so widely available for their use. It is ideal for writing short programs. This does not mean that it is unsuited for larger ones. However, you should be aware of what its use entails.

This month's *Insider Notes* column addresses the limitations of Basic, and, also, sound programming techniques that can help you get around them. They are demonstrated in the description that follows of a method of developing a library of subroutines for easy and reliable performance of common programming chores.

Additional subroutines will be described in future columns. Once you have a library of moderate size, you will find that a program that might have taken an hour or more to write can now be done in a matter of minutes. The subroutines will be written in the 8-bit CP/M version of Microsoft Basic, as it is the most generally used programming language (available for Apple, IBM, Osborne, TRS-80 and other computers).

Programming Tips

When writing a program, it is always advisable to use long, descriptive names for variables. Someone else who tries to understand your program will have a much better idea of what is happening in a line that says "TRAVEL.EXPENSE = GAS.XP + TOLL.XP" than if it is written as "TRX = GS + TX". Does TX refer to tolls, tickets, or taxes? Even you may not remember if it's been a while since the program was written.

Please note that I am deliberately breaking the above rule by using short, non-descriptive variable names in the subroutines. Due to a limitation of Basic, described further on, it is not advantageous to use descriptive variable names in subroutines. Therefore, using short names avoids confusion between subroutines and program variables.

Another suggestion is to use subroutines to the maximum extent to do common programming chores, to save time and to avoid errors.

Try to keep the subroutines at the same locations in all your programs. The indexed method described here will enable you to use a consistent GOSUB statement, while allowing the matching subroutine to reside anywhere in the program. Next month, I'll explain a little more about how subroutines should be added to the library.

One of the subroutines included in this column is one that converts a string of characters to upper case. In another language, such as C or PL/I, the upper-case conversion function (or procedure) might be used as follows: "UP__CONV(NAME);" or "UP__CONV(ADDRESS);". Unfortunately, most Basic dialects require

the subroutines to be called by using line numbers instead of the more descriptive function names. Another weakness of most Basics is that parameters must be indirectly passed to the subroutine. What this means is that to convert a string such as ADDRESS$ to upper case, a copy is made to another string that is recognized by the subroutine. An example of this may be seen in the subroutine starting on line 50190.

Upper/Lower-Case Conversion Subroutine

A routine which converts a string of characters to lower case, may be seen at line 50220. It is similar to the upper-case conversion routine. Both routines work reliably, but can still be improved upon. If S$ is of any size at all, the computer will take a noticeable amount of time to do the conversion. The routines also cause free string space to be used up, and will eventually cause the interpreter to initiate what is known as "garbage collection." (The subject of garbage collection will be addressed in the next column.) See if you can develop an upper/lower-case conversion routine that doesn't contribute to this problem. Next month an alternate set of routines that do not waste string space will be provided. To use the subroutines, first initialize the subroutine package as shown in line 1000. This need be done only once in a program. Then copy into S$ the string that must be converted and make a call to the appropriate line number (GOSUB).

```
1000   GOSUB 50010:
       REM Initialize...
1010   S$="This is a test.":
       GOSUB 50060
1020   PRINT S$: STOP
```

"THIS IS A TEST." will be printed on the console. The next set of routines in the library will get a single character from the console. One will return without echoing (printing on the console) the character, one will echo the character, and the last will echo the character and then cause a "new line" to be printed. Their entry points are lines 50030, 50040 and 50050.

Filename Checker Subroutine

Another useful subroutine is listed at line 50250. At times, it must be determined whether a particular file does or does not exist. The subroutine used for the test must neither modify the file if there is one, nor create the file if it does not already exist. Note that upon exiting the subroutine, the ERROR trapping is disabled by using the statement "ON ERROR GOTO 0". This prevents a loop back to the subroutine. Failure to take this precaution can lead to much confusion when errors in another part of the program suddenly cause a branch to line 50280. Although the 8-bit Basic versions permit filenames to be in lower case, it is not wise to do so. The 16-bit PCDOS/MSDOS versions do not allow it, and some operating systems do not recognize filenames that have any letters in lower case. Now, let's look at a short program that uses our new subroutines.

```
1000   GOSUB 50010:
       REM Initialize...
1010   INPUT; "Type a filename:",
       S$: GOSUB 50060: GOSUB
       50080:
       IF FOUND THEN PRINT "--exists."
       ELSE PRINT "--does not exist."
1020   PRINT "Check more filenames?
       [y,n]:";
1030   GOSUB 50050:
       GOSUB 50060 'Get U-case
       char.
1040   IF S$ <> "Y" AND S$ <> "N"
       THEN PRINT BEL$;: GOTO 1030
1050   PRINT S$: IF S$="Y"
       THEN GOTO 1010
1060   PRINT "End of test.";
       END
```

Do you see how using the library will speed up your programming efforts? Using only one (multiple statement) program line, the program gets a filename, converts it to upper case if necessary, checks to see if the file exists, and then indicates whether or not the file has been found. Note that the TRUE/FALSE values used for FOUND are zero and minus one. Zero represents "FALSE" and minus one represents "TRUE." While any non-zero value may be used to represent "TRUE" in this case, only -1 should be used. The reason for this is to permit inverse relationships to give the expected results (i.e. NOT TRUE=FALSE and NOT FALSE=TRUE). Don't be afraid to experiment if it is not immediately apparent how the subroutines work. Try replacing the value 32 by 31 or 33 (in lines 52000 and 52030) to see what happens. Have fun.

```
50000   Subroutine Library
        Index
50010   GOTO 50100'*** Initialization
50020   GOTO 50150'*** Get a console character
50030   GOTO 50160' Echo character +nl$
50040   GOTO 50170' Echo character
50050   GOTO 50180' No echo
50060   GOTO 50190'*** Upper case conversion
50070   GOTO 50220'*** Lower case conversion
50080   GOTO 50250'*** Filename checker
50090   GOTO 50290'*** End of library
50100   '*** Initialization section
50110   FALSE=0: TRUE=-1:
        OFF=FALSE: NO=FALSE:
        ONN=TRUE: YES=TRUE
50120   ESC$=CHR$(27):BEL$=CHR$(7) :TAB$=CHR$(9):
        CR$ =CHR$(13):LF$=CHR$(10): NL$=CR$ +LF$:
        BS$ =CHR$(8) :RUB$=CHR$(127):FF$=CHR$(12)
        BS$=CHR$ (8):RUB$=
        CHR$ 127): FF$=
        CHR$ (12)
50130   FILTERED=YES
50140   RETURN
50150   '*** Console input w/wo echo, etc.
50160   GOSUB 50170: PRINT: RETURN
50170   GOSUB 50180: PRINT S$;: RETURN
50180   S$=INPUT$ (1): IF NOT FILTERED THEN RETURN
        ELSE IF S$<=" " THEN RETURN
        ELSE PRINT BEL$;: GOTO 50180
50190   '*** Convert S$ to upper case
50200   FOR S1%=1 TO LEN (S$):S1$=MID$(S$,S1%,1):
        IF S1$>="a" AND S1$<="z" THEN
        MID$(S$,S1%)=CHR$ (ASC(S1$)-32)
50210   NEXT S1%: RETURN
50220   '*** Convert string S$ to lower case
50230   FOR S1%=1 TO LEN(S$):S1$=MID$(S$,S1%,1):
        IF S1$>="A" AND S1$<="Z" THEN
        MID$(S$,S1%)=CHR$(ASC(S1$)+32)
50240   NEXT S1%: RETURN
50250   '**** Find out if file S$ exists
50260   ON ERROR GOTO 50280: OPEN "I", #1, S$:
        FOUND=TRUE
50270   ON ERROR GOTO 0: CLOSE #1: RETURN
50280   FOUND=FALSE: RESUME 50270
50290   '**** End of subroutine library****
```

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in the machine at one time.

What will the integrator lineup be? Three integrator packages are scheduled for delivery in the 4th quarter of 1983 — APX Core Executive from Application Executive Corp.; Quarterdeck DesQ from Quarterdeck Software and VisiOn from VisiCorp. A fourth package may be announced late this year by Microsoft.

The integrator systems are structured to overcome the incompatibility that prevents application programs from working together effectively. The integrators fall into two categories, described by software expert, John A. Murphy, vice president of Advance Office Concepts, Inc. as "vertical" and "horizontal."

Vertical integrators, represented only by VisiOn, only use extensively rewritten applications software. Horizontal integrators, such as APC Core Executive and Quarterdeck DesQ use unmodified applications programs from different publishers — WordStar with VisiCalc and dBase II for instance. They control the computer's operating system, alternately ordering it or tricking it to conform to their commands.

Of the three existing systems, the vertical integrator, VisiOn may well have the highest operating speed. However, it also runs into money. The full VisiOn system will cost $1,710 ($450 for Applications Manager integrating software; $250 for an electronic mouse pointer; and, presumably, $1,010 for three programs — spreadsheet, word processing, and graphics — formatted for VisiOn). Additional applications software will be provided by VisiCorp. and third party developers.

The two horizontal integrators have many common features. Ease of use is obviously essential for such freewheeling systems. For instance, there are just six basic APC Core commands — Switch Task; Set Window; Scroll; Transcribe; Control Menu; and Keysave. The latter enables the system to memorize and replay sequences of keystrokes for routine office tasks. Quarterdeck DesQ functions are basically similar.

One outstanding difference in features is that the programs in APC Core windows operate simultaneously, while Quarterdeck DesQ processing is limited to the window in the foreground of the screen. However, the system's developers will add concurrent processing if there is sufficient demand.

Quarterdeck DesQ costs $395 and requires at least 256K-bytes memory and a 5-megabyte hard disk for quick transfer of applications files. APX Core Executive is to be priced between $100 and $200. It requires at least 128K-bytes. This will accommodate the system software and two substantive applications, such as word processing and a spreadsheet. Additional memory is required for more applications. (In theory, up to 255 applications may be accommodated.)

Can you use integrators on other computers than IBM PCs? IBM represents an obvious, sizeable market for business software. However, Quarterdeck is already considering a CP/M-86 version. Expect CP/M to become available on the other two systems and on a rival system that will probably be introduced in 1984. Also, the same inventive minds that have developed 16K versions of VisiCalc for the Timex Sinclair 1000 will soon be at work on the integrators.

What's BMR's evaluation of the first three integrators? There's a clear distinction between VisiOn and the other two systems. VisiOn is a heavy duty, high productivity tool for large offices, with a price to match. APX Core and Quarterdeck DesQ may be more suitable to the needs for flexibility of small organizations and professionals. Certainly, the latitude they give users in choosing their own software is a plus.

Caution: Configuring your own integrated software package is fine so long as you use thoroughly debugged applications software such as VisiCalc. (Though, WordStar users still report surprises.) However, it's not clear yet whether all of the emulators of these popular programs will fit as neatly. Test before buying.

APX Core vs. DesQ? They're both truly innovative products, developed independently. APX Core, a product of Soho, New York's urban mini-Silicon Valley, may reflect a somewhat more sophisticated approach. It has a lower price and lower memory requirements. However, supporting the product after it's launched may be a challenge for the new, small firm. (Quarterdeck, too, is new and small, but is better financed.) It's likely that, as in the case of Quarterdeck, RAM disk or Winchester drive storage may be useful to get the most of APX Core's capabilities.

Inquiries: (1) Local dealers. (2) Quarterdeck Software, 1918 Main St., Suite 240, Santa Monica, CA 90405. 213/392-9851. (3) Application Executive Corporation, 600 Broadway, Suite 4C, New York, NY 10012. 212/226-6347. ●

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which promises to do the job is Screen Kleen, a cloth impregnated with an odorless substance to which the dust adheres. It can be handily folded to reach hard-to-get-into recesses, too. If unavailable locally, it can be ordered. Send $2.95 (for two cloths) to *CRT Products Co., 2013 Franklin St., Detroit, MI. 48207.*

VDT's and eyestrain under scrutiny. The debate over whether video display terminals pose health hazards is heating up, with at least two states — Connecticut and Maine — approving bills to study the VDT health issues.

In addition, four other states, New York, Illinois, Massachusetts and Oregon. have considered regulatory laws on VDT hazards.

While a study conducted by the American Academy of Opthalmology reached a conclusion that the level of radiation emitted by VDTs does not affect vision, its effects are also undergoing scrutiny by the American Public Health Association.

According to the Vision Care Section Officer, Jonathan Goldman, many wearers of bifocal and trifocal glasses may well find that they could use an extra pair of spectacles specifically for VDT use. He also notes that individuals over 40 years of age as well as contact lens wearers may be more prone to eye strain problems. Goldman recommends annual eye exams as a good prevention measure. ●

Leasing for Personal Computer Users

"I'll lease anything $3,000 or over," says Sonny Monosson, owner of Boston's Personal Computer Leasing Corp.

Monosson has a slightly different slant on why people lease computers rather than purchase them outright. Aside from the advantages of a less-sizeable cash outlay up front as well as bypassing higher bank rates, he says, "many people want to lease because they feel that once they buy they're going to be trapped into that particular machine, something they may not want to do for more than two years."

Personal Computer Leasing charges 5% on a two-year lease; 4% on a 3-year lease and 3% on a four-year lease. For example, an IBM PC (retailing at $3,262) on a two-year lease, would set back a customer about $160 a month.

Most of his leases, according to Monosson, "usually run two to three years." This duration is largely a function of credit, he says. "For example, if I write a two-year lease, I will usually allow the customer to lease it the third year for one month's rent, which is very cheap. I do it simply because once I get a certain investment back I want to keep that machine out. Let's face it, there's not much of a market for used personal computers. The technology changes too fast."

Monosson's leasing agreements include a fair market value buy-out provision. A customer who wants to exercise it near the end of the lease, say in the last year of a 3-year agreement, can do so by paying for the residual value. If the customer wants to purchase early, as for example, after the first year of a three-year lease, then Personal Computer Leasing will establish a buy-out price and apply 50% of the lease payments toward the figure.

Monosson's customers, in addition to businesses as well as accountants, lawyers and doctors, number a great many architects and engineers, he says.

"They use their computers mainly for data base information, for calculations and sometimes as an intelligent terminal to access a bigger data base."

He has no problems leasing to professionals, "as long as the person has a stable, responsible position and a good credit rating."

His customers select their own hardware configurations. Monosson buys to their order and packages hardware and software and, in some cases, training as a bundle.

Because not all customers know what they want, or, indeed, what they can use, Monosson says that he believes in asking questions. "I like to get enough of their background to see if they've done their homework," he says. However, he does not like to get himself too involved, either. "I do not want to find myself in the position of recommending something that may not work later," he adds.

Personal Computer Leasing Corp., POB 71, Boston, MA. 02215. (617) 437-1160.

Should You Lease?

• *What is a Lease?* It's a long-term financial agreement according to which you make periodic payments and get an opportunity to own the computer at the end of the lease's term.

• *What is the principal advantage of leasing?* Not having to lay out a large chunk of money at a time when cash flow may be of prime importance, or, money is just plain scarce.

• *What is the principal disadvantage of leasing?* In the long run it will cost you more than buying a system outright. Reason for that is you're buying and borrowing money at interest to pay for it.

• *Who owns the computer?* During the life of the lease, the lessor is the registered owner. When you sign the lease, you can choose among several purchase options. Only when you exercise that option do you become the legal owner of the system.

• *What are the tax aspects of leasing?* Your lease payments are deductible as business expenses for the year in which you pay them… Whether or not you can depreciate depends on the specific terms of your lease… Note that a lease does not automatically entitle you to an investment credit, although this can sometimes be negotiated with the leasing company… When the lessor takes the credit, he may pass the savings on to you through a reduced lease rate… If you claim a loss for tax purposes, the credit will be of no use to you… If you don't use your computer for business and itemize deductions on your tax return, you're still eligible to deduct the finance charge portion of your lease payments.

• *What additional expenses go with the lease?* Depends on the lessor. Some will offer service and maintenance for an extra monthly charge. You may also be required, under your leasing agreement to obtain insurance — either a business or homeowner's policy.

• *Where to go for lease financing?* Contact a leasing firm or a computer dealer. To find lessors, look in the yellow pages under "Leasing Services" and "Computer Dealers."

Typical Lease Payments and Costs
(investment tax credit retained by lessor)

Term Mos.	Equip. Cost	Payment Rate	Monthly Payment	Total Payments	Term Mos.	Equip. Cost	Payment Rate	Monthly Payment	Total Payments
36	$ 5,000 ×	.03919 =	$195.95	$ 7,054.20	48	$10,000 ×	.03149 =	$314.90	$15,115.20
48	$ 5,000 ×	.03249 =	$162.45	$ 7,797.60	60	$10,000 ×	.02829 =	$282.90	$16,974.00
60	$ 5,000 ×	.02929 =	$146.45	$ 8,787.00	36	$15,000 ×	.03599 =	$539.85	$19,434.60
36	$10,000 ×	.03819 =	$381.90	$13,748.40	48	$15,000 ×	.02979 =	$446.85	$21,448.80

Source: Studebaker-Worthington Leasing Corp.

BUYING SMART

NEW GAMES FOR OLD

Now that you've had your fill, the Pac-Man, Centipede or other game cartridge that delighted your household just a few months ago may be gathering dust. However, it still has value, either to swap for another game, or for resale.

Companies that exchange, buy or sell used home computer games are springing up across the United States. The trading or exchange services they provide, usually by mail or through periodic listings, are nationwide. Swaps can be unit-for-unit or include cash to make up difference in value. A typical swap cited by one firm, involved the exchange of an Asteroid cartridge worth $6, plus cash to make up the difference, for a Spider Fighter cartridge valued at $17. Most companies charge a fee of about $5 per transaction.

Secondhand games sell at discounts of 30% to 60% from new, i.e. a $40 to $50 ColecoVision Zaxxon game goes for $24. This also means, of course, that the games that you sell will be similarly discounted. However, you can get at least some money back for your next purchase.

Some of the most active swapping concerns are the following:

● *Cribbs & Associates, P.O. Box 1012, Bedford, TX. 76021. 817/498-3045.* Send 50¢ for price information on Atari and Intellivision video games.

● *Forest Hills Used Video Game Cartridges, Inc., 63-56 108th St., Forest Hills, Queens, NY. 212/897-6100.* Publishes a monthly list of prices for secondhand Atari 2600 and 5200, and ColecoVision games. Typical prices — Pac-Man, $1.95; Centipede or Ms. Pac-Man, $18.95.

● *National Video Exchange, 140 Oregon St., Box 990, El Segundo, CA. 90245. 213/322-6034.* Values of Atari game cartridges to be sold, bought, or sold through the company's exchange operation, are calculated by a computer.

● *Video Game All-Stars, 666 Old Country Road, Garden City, L.I., NY. 11530. 516/222-1055.* Runs a trading service for which a fee of

PERSONAL COMPUTERS ON WALL ST.
TWO COMPUTER RETAILERS
by Don F. Sinsabaugh, Microcomputer Industry Analyst, Gintel & Co.

Personal computer companies and suppliers to this industry have been one of the stronger driving forces in the substantial stock market rise over the last year. During the last two years, at least two computer store chains have gone public.

One of these is **CompuShop Incorporated,** founded in Dallas, Texas, in 1977. Throughout its history, it has had a close relationship with Apple Computer. (At one time, the company served as a wholesale distributor for Apple.)

CompuShop operates 26 stores in Texas, Illinois and Colorado. It plans to open four more stores over the next few months. This makes the company one of the largest wholly owned personal computer retailers. The company went public May 12, 1983, and is traded in the over-the-counter market with the symbol CSHP.

The company markets the Apple product line and the IBM Personal Computer as its mainstay products. CompuShop also sells a wide variety of peripherals, including Epson printers. It also offers a wide choice of software packages, including VisiCorp and Microsoft programs.

The concentration on marketing Apple and IBM products, the two dominant factors in the PC marketplace, has been the key to Compu-Shop's success, we believe. It has allowed the company to concentrate its people resources on learning the technology of those products from a sales and service point of view.

Operations have grown considerably throughout the company's history. Revenues rose from $1.8 million in 1978 to $14.5 million in the fiscal year ending October 31, 1982. In the first six months of the current fiscal year, revenues were reported to be $14.3 million. On this basis, Gintel estimates that revenues for the year will rise to almost $30 million. In the first two years of operations, Compu-Shop reported losses because it was expanding operations. Starting with fiscal 1981 and 1982, the company reported a profit of $0.03 and $0.10 per share respectively. In the first six months of this fiscal year, earnings rose to the $0.31 per-share level compared to $0.05 a share in the prior year. For the full year, Gintel antici-pates income in excess of $0.60 per share.

The Computer Factory, Inc. was founded in 1977 in an apartment building on Madison Avenue in New York. The company considers the metropolitan area of New York to be its home turf. Gintel estimates that the Factory is the leading retailer in that market with eight stores scattered throughout the area. The company went public in 1981 and is traded in the over-the-counter market with a symbol of CFAC.

The Computer Factory has concentrated its efforts on the business market for personal computer systems. Its product offerings include Apple, Onyx Systems, Osborne and Fortune Systems. The Factory recently became an authorized marketer of the IBM Personal Computer. It also carries a wide selection of peripherals both for the computers it markets and, also, for the BMC Systems and NEC computers. The company's business orientation is reflected in its sales of packages written in advanced languages, such as Fortran and Pascal and business software from VisiCorp and Microsoft.

In the last five years, the Computer Factory's revenues rose from less than $1 million in its first year of operation to $11.6 million in the fiscal year ending September 30, 1982. In the first six months of the current fiscal year, sales were $8.2 million compared with $5.2 million in the prior year. For the year as a whole, we project revenues will increase by almost 60% to the $18 million region. The company has had profitable operations from its first year, with continuous earnings per share growth to the $0.27 level in fiscal 1982. Gintel anticipates earnings will rise in the current year to $0.50 per share.

Gintel & Co. recommends that investors buy a package of publicly traded retailers of personal computer systems. The Computer Factory and CompuShop should be included in this package. CFAC is trading at 14¼ which is 28.5 times our 1983 per share estimate. CSHP is trading at 17¼ which is 28.8 times our 1983 per share estimate. Both of these stocks are attractive for purchase at that level.

The views expressed in this article are those of Gintel & Co. ●

WORDS PROCESSED...

As A Kid Sees It...
The author of this review, Jeremy Goldstein, has spent close to a quarter of his life around computers. Fourteen-year-old Jeremy is an Atari 800 owner.

Microcomputers Can Be Kidstuff.
By Anna Mae Walsh Burke. 173 pages. Hayden Book Company. $8.95

While some books deal with one topic, such as what computer to buy, or a specific computer's language, this author tries to cover almost everything at once. Unfortunately, she never gives enough information about any one topic. The first half of the book deals with different types of computers, what they can do, and some of the arts of programming. Again, she tries to cover a lot, but in the end you are left with many unanswered questions and once or twice utterly confused.

Once the author finishes with the basics, she moves on to programming languages. The two languages she deals with are Pilot and BASIC. For Pilot, she covers all the essentials, although at times she leaves the reader with insufficient explanations or too few examples. BASIC's coverage is somewhat better. There are more examples and more complete explanations, but, the author still attempts to do too much in too little time. While Ms. Burke tries to teach only the basics of BASIC, she deals mostly with TRS-80 BASIC, so she often tells her readers to refer to their manuals if they use a different BASIC.

The book ends with some sample programs and some questions to ask yourself about your computer. The programs are well documented and the questions are quite useful for keeping track of important information. Once you finish this book, however, you'll probably find that you will need to buy a second one, just to fill in all the details.

PROFESSIONAL BOOKS
The Pharmacy Computer Handbook.
140 pages. Available from Computer Strategies, 10218 Chimney Hill, Dallas, Texas. 75243. $45 plus $2 for shipping charges. This handbook explains to pharmacists contemplating the purchase of a computer what a pharmacy computer system can and cannot do and how to justify the costs involved.

The Hotel/Motel Computer Handbook.
180 pages. Available from Computer Strategies, 10218 Chimney Hill, Dallas, Texas 75243. (214) 644-0222. $45 plus $2 for shipping charges. The handbook explains what a hotel/motel computer system can and cannot do and how to justify the costs involved. Checklists help the reader decide what features the system should have. A fill-in-the-blanks request for proposal is included. Negotiation of contracts and how to implement and manage a system are also covered. The index-tabbed looseleaf volume comes with a vendor directory and a 60-day money-back guarantee.

KITS, DISKS AND TAPE
Introduction to BASIC (26-2753).
Available through Radio Shack Computer Centers, stores and dealers, $39. Intended for use with the Radio Shack Part I Student Workbook (26-2151), offered separately for $3.50 per copy. Includes ten 30-minute VHS videotape lessons on BASIC programming on such subjects as arithmetic operations, creating and storing programs, branching, looping, arrays, subroutines, read-data statements and graphics. Students complete a quiz and perform assignments on a computer after the presentation.

The VisiCalc Program Made Simple.
Available from MicroVideo Learning Systems, 342 E. 53rd St., New York, N.Y. 10022. (212) 980-3552. $129.95. A 58-minute video tape presentation on how to set up and use the VisiCalc program. It is accompanied by a 32-page reference guide. It familiarizes the audience with the IBM personal computer and explains preparation of the VisiCalc programs and data diskettes. It also teaches the user to build a simple spreadsheet and how to modify it to exact specifications.

Careers in Computing (26-2758),
a multi-media instructional kit from Radio Shack, provides secondary school students with information to begin considering a computer-related career. The package contains a narrated film strip, Teacher's Guide, 30 Student Handbooks, a wall chart and spirit masters for student activities. The kit is available through participating Radio Shack stores and dealers for $130. Extra Student Handbooks are available separately at $1 each. ●

BUYING SMART (Cont'd.)
under $5 is charged. Its buying club ($15/yr. membership) offers discounts of $3 to $5 per game.

TRADE IN YOUR SOFTWARE
How about swapping your Apple II program library for IBM PC software? The place to do it in is the National Software Exchange in Montclair, New Jersey. Owner Sam Bleecker is launching (in September) what he describes as the first national software exchange operation in the world.

"People need a way of exchanging software on a national basis and have some tie-in with a national network," according to Bleecker, who also runs an active video game swapping service.

Who will his customers be? "People who either outgrow their software because they're changing computers and are left with all that incompatable software for their old machine. Or sometimes, they'll be looking for software for systems that are not very popular or just have not had much software developed for them. They may also be individuals who have either business software or hardware or peripherals they want to exchange or make a deal on." For those, part of Bleecker's scheme is to provide a newsletter called SWAP which will go "only to members" he says.

Most of the programs listed in the National Software Exchange's newsletter will probably be educational or recreational software initially. However, some business software is already listed. Hardware and peripherals will also be exchanged through the newsletter. SWAP and the opportunity to trade your software or surplus equipment will cost $75 per year for individual memberships, and $250 for institutional membership. There will also be a handling charge of $5 for each transaction.

National Software Exchange, 700 Bloomfield Avenue, Montclair, NJ 07042. 201/783-6000. ●